

## Lab Concepts: Proteins, Enzymes, pH and Buffers

**Observations:** Complete the following:

- Cells must maintain homeostasis which means
- pH is
- protein structure is determined by
- enzymes are
- enzymes function in
- enzymes are denatured by
- Buffers keep pH stable by absorbing or donating H <sup>+</sup> (hydrogen ions)

**Question: (purpose)** Are living cells able to keep their pH stable?

**Hypothesis: (answer/explanation)** Include reason for hypothesis (rationale)

**Materials:** buffer, water, plant cells, animal cells, NaOH 0.1 M, HCL 0.1M, pH strip, containers/pipettes, well plate

**Method:** Design an experiment to test a hypothesis about cells and pH  
use 1 drop of pH solutions to a full well of of control or experimental solutions

**Experimental Design:**

Describe in bullets the experimental set up

Draw a diagram with labels to illustrate the experimental procedure.

Identify the variables/factors affecting the experiment (IV, DV, Control) List constant factors (at least 4)

Bulleted Description (be sure to note safety measures)

Experimental Diagram (show well setup and # of drops of each substance to be added)

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Data: Complete the table with title and row and column headings


**Notes/observations during experimental procedure**

**Analysis:** Describe results in bulleted statements:

**Conclusion/discussion:**

Complete an outline for your rough draft report with the following information

Bullet the following information:

- Purpose/hypothesis
- Concepts which explain the hypothesis
- Results which do or don't support the hypothesis
- Discussion of the significance of the results to the concepts behind the hypothesis
- Discussion of technique validity(what went wrong/could be improved)
- Discussion of results validity(what went wrong/could be improved)
- Description of other questions that this technique could be used to investigate

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